

## ABSTRACT OF THE DISCLOSURE

**RADIOLIGANDS FOR THE TRP-M8 RECEPTOR AND METHODS  
THEREWITH**

5 One embodiment of the invention is a composition that comprises a radioactive  
[<sup>18</sup>F], [<sup>123</sup>I], [<sup>125</sup>I], or [<sup>131</sup>I]-N-radiohaloaryl-alkylcarboxamide molecule. The  
composition binds to the transient receptor potential-M8 (TRP-M8) receptor of  
cells. The TRP-M8 receptor is selectively expressed in sensory neurons and in  
malignant tissues such as prostate cancer cells. The [<sup>18</sup>F], [<sup>123</sup>I], [<sup>125</sup>I], or [<sup>131</sup>I]-N-  
10 radiohaloaryl-alkylcarboxamide ligand may be used for radioreceptor binding  
studies, for diagnostic studies, and for radiotherapy of cancerous tissues. Affinity of  
the [<sup>125</sup>I] or [<sup>131</sup>I]-N-radiohaloaryl-alkylcarboxamide ligand for the TRP-M8  
receptor confers selectivity and specificity in delivering lethal radiation to the  
diseased cells.